entry of Appendix I as substitute specification approved TPN 11/30/07

APPENDIX I
APPLICATION AS FILED WITH REPLACEMENT PAGES INSERTED

METHOD AND DEVICE FOR SIMULTANEOUSLY DETERMINING THE ADHESION, THE FRICTION AND OTHER MATERIAL PROPERTIES OF A SAMPLE SURFACE.

Specification

[0001] The present invention relates to a method for simultaneously determining at least two material properties, comprising the surface topography, the adhesion, the static and dynamic friction as well as the elasticity and rigidity, by means of a raster probe microscope comprising a raster probe. The invention relates also to an improved raster probe microscope for the carrying-out of the process according to the invention.

[0002] Raster probe microscopy makes possible the non-destructive characterization of sample surfaces on a molecular or atomic scale. Besides the topography of a surface to be examined there can also be determined a number of other surface properties, such as for example the friction, the adhesion, the yieldingness and other elastic properties.

[0003] To the class of the raster probe microscope there belong, for example, the raster tunneling microscope (STM: Scanning Tunneling Microscope), near-field microscope (SNOM: Scanning Near-Field Optical Microscope) and force or raster force microscope (SFM: Scanning Force Microscope or RKM: Raster Force Microscope).

[0004] Regarding further information on raster probe microscopy let reference be made here to the following publication of Binnig et al, Binnig, G., Quate, C.F. and Gerber, C.: Atomic Force Microscope, Phys. Reg. Lett. 930-933, 56/56 (1986).

[0005] The determination of adhesive forces occurs ordinarily over a measurement of force-distance curves by means of a raster force microscope. In such a